KRACHKOVSKIY, N. N.

178T38

USSR/Electricity - Transmission Feb 51

"Regarding L. I. Dvoskin's Article 'A New System of Connections for Large Electric Power Stations' ('Elektrichestvo' No 5, 1950)," M. I. Slavnin, Cand Tech Sci, Moscow Dept of "Teploelektroproyekt," N. N. Krachkovskiy, Cand Tech Sci, "Gidroenergoproyekt"

"Elektrichestvo" No 2, pp 86, 87

Slavnin criticizes Dvoskin's proposal on doubled generator-transformer units on grounds that Dvoskin picked very special case (6 turbogenerators of 50,000 kw each and delivery of all power at 220 kv). Krachkovskiy contends method would bring no real advantages.

[redacted] 178T38

USSR/Electricity - Transmission, Jul 51
High-Voltage
Switching Systems

"Some Problems of High-Voltage Network Switching Systems," N. N. Krachkovskiy, Cand Tech Sci, Moscow

"Elektrichestvo" No 7, pp 25-28

Discusses switching systems for step-down substations fed from single- or double-circuit transmission lines. Analyzes briefly the circuits from the standpoint of reliability of substation operation and the operation of

199T17

USSR/Electricity - Transmission, Jul 51
High-Voltage (Contd)

relay protection and automatic repeated reclosing with consideration for automatics and telemechanics equipment required. Recommends more reliable and economical systems than are ordinarily used.
Submitted 20 Jan 51.

199T17

KRACHKOVSKIY, N. N.

S.A.

Transmission

F

621.315.051.025

1063. The problem of the economy of long a.c. transmission lines. N. N. KRASTCHOVSKII. *Elektrichestvo*, No. 11, 7–11 (Nov., 1951) In Russian.

The distances and voltages, respectively, compared were 300, 600 and 900 km, and 220, 310 and 380 kV. The greatest economic advantage is obtained by raising the voltage from 220 to 310 kV. A further increase to 380 kV reduces the transmission costs per kWh over distances from 600 to 900 km by only about 6%. This applies to equal specific loading of the line. If, e.g., 800 MW are to be transmitted over 600 km, the distance over which the natural loading of the line can be transmitted, 7 circuits are necessary at 220 kV, but only 4 and 3, respectively, at 310 and 380 kV. The respective percentages of the natural loading are then as 2·78 : 2·57 : 2·63. By using 2 conductors/phase the natural load is increased by 25–30%, by using 3 cond./ph., by 40%. The primary costs of a 380 kV line with 2 cond./ph. increase by 19% per km, but the cost of the line per 1 kW natural load are reduced by 7%. The saving obtained by using longitudinal compensation amounts to 20% per 1 kW transmitted, but neither power losses nor the demand for non-ferrous metals are reduced by it. Compensation of a 220 kV line is less economical than raising the voltage to 380 kV, therefore it will be advantageous only where the latter measure is not otherwise justified. All the measures mentioned, however, are economically sound only in large power systems, since for smaller powers the lowest voltage is the most favourable solution.

B. P. KRAUS

KRACHKOVSKIY, N. N., Docent

USSR/Electricity - Transmission Lines Nov 51
Economics, Engineering

"The Problem of the Economics of Long AC Transmission Lines," Docent N. N. Krachkovskiy, Cand Tech Sci, Moscow

"Elektrichestvo" No 11, pp 7-11

Considers the economy of transmitting elec power at voltages of 220, 310, and 380 kv over distances of 300, 600, and 900 km. Presents results in tables and curves which give the dependence of

201T55

USSR/Electricity - Transmission Lines (Contd) Nov 51

capital investments per kw of transmitted power and of yearly expenses per kw-hr of elec energy for various voltages as a function of distance. Submitted 11 Dec 50.

201T55

KRACHKOVSKIY, N. N.; SHNEYDMAN, Y. S.; LEVIN, F. P.

"Several Questions of the Schemes of Interconnection of High-Voltage Nets," Electricity, Publ. by the Printing House of the Govt. Energy (Electrical) Publ. House, in Moscow, 1952.

KRACHKOVSKIY, N. N. PA 228T47

USSR/Electricity - Transmission Lines Apr 52

"Evaluation of the Carrying Capacity of Transmission Lines on the Basis of Natural Power," N. N. Krachkovskiy, Moscow

"Elektrichestvo" No 4, pp 10-15

Notes the effectiveness of this method in planning transmission lines. Illustrates the use of the method for comparing transmission lines of various voltages with respect to voltage drop, energy losses, and stability of parallel operation. Submitted 19 Nov 51.

228T47

KRACHKOVSKIY, N.N.; VINTER, A.V., akademik, redaktor.

[Long-distance transmission of electric energy] Peredacha elektricheskoi energii na dal'nie rasstoianiia. Moskva, Izd-vo Akad. nauk SSSR, 1953. 67 p.
(Electric power distribution) (MLRA 7:8)

USSR/Electricity - Conductors
Standards

KRACHKOVSKIY, N.N.

Apr 52

"Discussion of the Article by A. A. Glazunov, A. A. Glazunov [sic], and G. P. Rozenov, 'Economically Feasible Ratio of Aluminum and Steel Sections in Steel-Aluminum Conductors,'" N. N. Krachkovskiy, Cand Tech Sci, Gidroenergoproyekt; Engr P. A. Golubtsov, Teploelektroproyekt

Elektrichestvo, No 4, pp 84-86

Krachkovskiy and Golubtsov, in separate comments, discuss merits and important aspects of proposal by Glazunov et al (Elektrichestvo, No 5, 1952) to revise standard GOST-839-41 on steel-aluminum conductors.

253T32

KRACHKOVSKIY, N.N.

2

Systems of electrical connections of hydroelectric stations. N.N. Krachkovskii. Elektrichestvo, 1953, No. 11, 6-15. In Russian.

Standardization of the electrical portion of hydroelectric stations is almost impossible, except in a country where, as in the USSR, there are very large numbers of stations of nearly every possible type from which common layout features may emerge. These are discussed. An account is given of commutation circuits in relation to number and rating of the units, supply circuits of the station auxiliaries, layout and connections of the step-up transformer stations and special problems arising in the case of exceptionally large stations.

B.F.Kraus

Electrical Engineering Abst.
Vol. 57 No. 676
April 1954
Electrical Engineering

Docent, Cand. Tech. Sci.

KRACHKOVSKIY, N.N.

AID P - 1296

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 20/30

Author : Chumburidze, I. P.

Title : N. N. Krachkovskiy's article: "Interconnection diagrams of hydroelectric power stations" (Elektrichestvo, #11, 1953) (Discussion)

Periodical : Elektrichestvo, 1, 75-76, Ja 1955

Abstract : The author critically discusses at length the above article and points to certain incorrect statements concerning, in particular, nonsymmetrical diagrams. He points out some different solutions for diagrams of the stations' own needs. One diagram.

Institution : ARMENENERGO

Submitted : No date

KRACHKOVSKIY, N.N.

AID P - 1298

Subject : USSR/Electricity

Card 1/2 Pub. 26 - 13/36

Author : Krachkovskiy, N. N., Eng.

Title : Discussion of the article "Electrical connection diagrams for hydroelectric power stations" by D. A. Bashlay and Yu. I. Ivanov (Elek. sta., 1954, No.2)

Periodical : Elek. sta., 3, 41-42, Mr 1955

Abstract : The authors of the article discussed considered switching arrangements for 220-kv hydroelectric power stations from the points of view of continuity of service, ease of maintenance, outage likelihoods and initial capital costs. The author of the discussion agrees in principle with most of their statements, but disagrees with the rule of solving the general scheme of planning the powerhouse in blocks consisting of generator-transformer. He also disagrees with their way of solving the problem of the station's own power needs. One connection diagram

KRACHKOVSKIY, N.N.

AID P - 2016

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 20/31

Author : Krachkovskiy, N. N., Kand. of Tech. Sci., Moscow

Title : New layout and structure of the switching equipment of electric power stations (Discussion of an article by L. I. Dvoskin, this journal, No.11, 1953 and Nos. 6 & 7, 1954)

Periodical : Elektrichestvo, 4, 79-81, Ap 1955

Abstract : The author criticizes the layout proposed by L. I. Dvoskin and points out its deficiencies. He presents certain corrections and illustrates them in one connection diagram. Two Russian references (1948-1950).

Institution: None

Submitted : No date

AID P - 2830

Subject : USSR/Electricity

Card 1/1 Pub. 27 - 19/30

Author : Krachkovskiy, N. N., Kand. of Tech. Sci., Moscow

Title : Certain problems concerning switching circuits of high-voltage networks (Discussion of same author's articles in this journal, No. 7, 1951; No. 6, 1952; No. 3, 1953)

Periodical : Elektrichestvo, 6, 76, Je 1955

Abstract : The author discusses objections raised by Ya. S. Shneydman, F. P. Levin, and M. M. Lebedev in this journal concerning his article. He explains these objections as based on a misunderstanding of his basic assumptions.

Institution : None

Submitted : No date

KRACHKOVSKIY, N N

AID P - 4129

Subject : USSR/Electricity

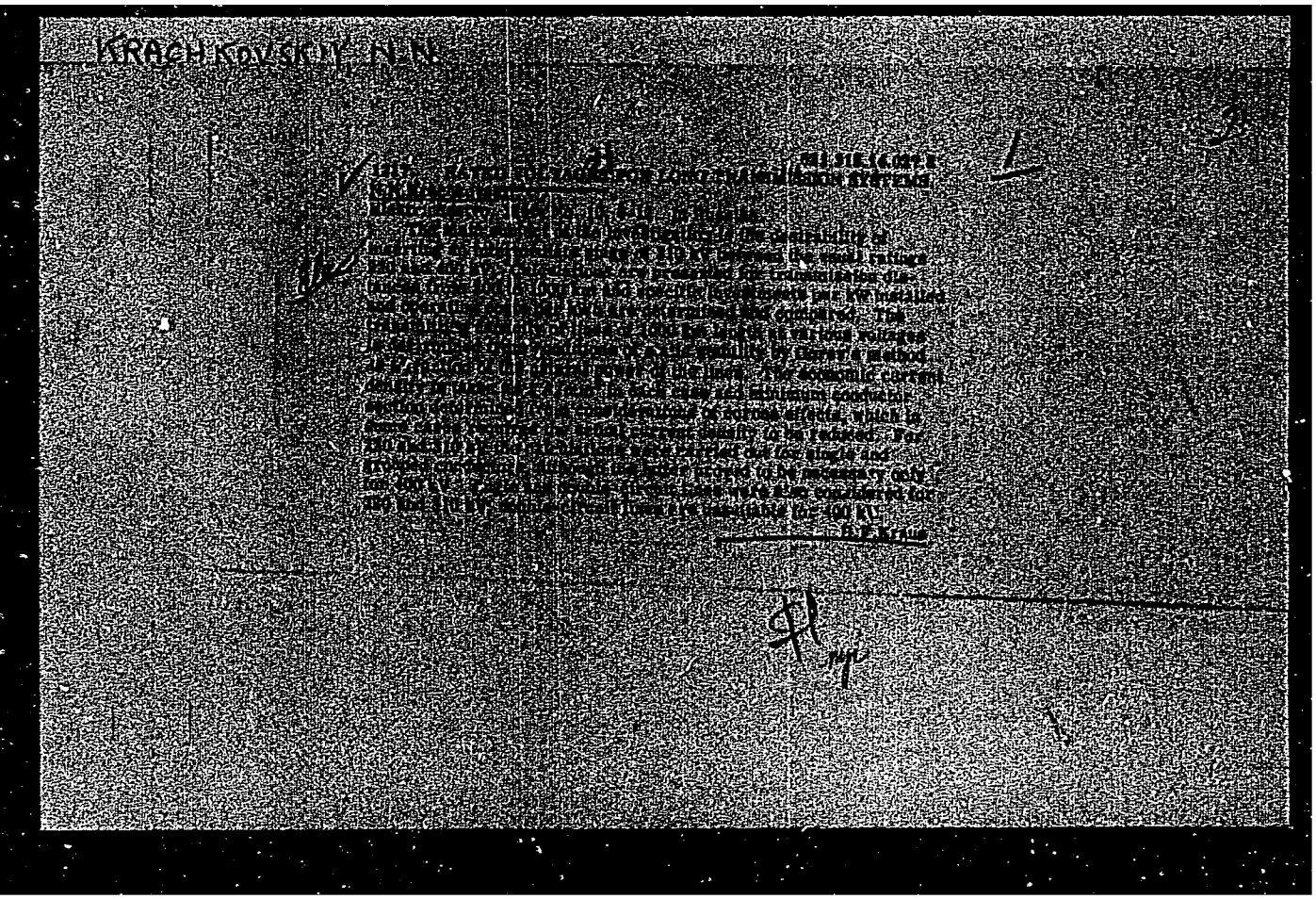
Card 1/2 Pub. 27 - 16/33

Author : Krachkovskiy, N. N., Kand. Tech. Sci.

Title : Electric connection diagrams of hydroelectric power stations. (Discussion of the article of N.N. Krachkovskiy, this journal, No. 11, 1953, Nos. 1 and 5, 1955).

Periodical : Elektrichestvo, 12, 63-66, D 1955

Abstract : The author replies to the criticisms of his article: "Electric Connection Diagrams of Hydroelectric Power Stations". He says that since the date of publication of the article, two years have elapsed, a period long enough for revision of some of his statements. He enumerates the prevailing tendencies in the development of a unified power system in European USSR, the interconnection of the power systems of Transcaucasia, and the creation of new powerful systems in Siberia. The author compares tendencies prevailing in this field in



x [illegible], N.N.

VINTER, A.V.; NEKRASOV, A.M.; SYROMYATNIKOV, I.A.; VOZNESENSKIY, A.N.; VASILENKO, P.I.; LAUPMAN, P.P.; TERMAN, I.A.; VINOGRADOV, N.P.; ANTOSHIN, N.N.; ALEKSANDROV, B.K.; USPENSKIY, B.S.; KLASSON, I.R.; KHEYFITS, M.E.; DRUTSKIY, V.F.; KRACHKOVSKIY, N.N.; POPOV, P.A.; CHELIDZE, I.M.; FILARETOV, S.N.; KOZLOV, M.D.; BERLIN, V.Ya.; SARADZHEV, A.Kh.; GORDZIYEVICH, I.S.; PAK, V.P.; DORFMAN, S.M.; DUBINSKIY, L.A.; UL'YANOV, S.A.; GRUDINSKIY, P.G.; KUVSHINSKIY, N.N.; ERMOLENKO, V.M.

Mikhail Mikhailovich Karpov. Elek.sta. 27 no.10:62 O '56. (MLRA 9:12)
(Karpov, Mikhail Mikhailovich, d.1956)

KRACHKOVSKIY, N.N. (Moskva)

Long-distance electric power networks. Izv.AN SSSR.Otd.tekh.nauk no.2:108-114 F '57. (MLRA 10:5)
(Electric power distribution)

KRACHKOVSKIY N.N.

DENISENKO, G.I., kandidat tekhnicheskikh nauk, dotsent; KRACHKOVSKIY, N.N., kandidat tekhnicheskikh nauk (Moskva).

On prospective use of d.c. power transmission in the Soviet Union. Elektrichestvo no.10:74-77 O '57. (MLRA 10:9)

1. L'vovskiy politekhnicheskiy institut (for Denisnko).
(Electric power distribution)

KRACHKOVSKIY, N.N., kand.tekhn.nauk

Economical zones for electric power transmission at 110, 154, and 220 kv.
Elek.sta. 28 no.12:55-58 D '57. (MIRA 12:3)
(Electric power distribution)

AUTHOR: ~~Krachkovskiy, N.N.~~, Candidate of Technical Sciences (Moscow) SOV/105-58-10-17/28

TITLE: On the Suitability and the Ranges of Application of 330 kV Voltage (O tselesoobraznosti i oblastyakh primeneniya napryazheniya 330 kv)

PERIODICAL: Elektrichestvo, 1958, Nr 10, pp 72-76 (USSR)

ABSTRACT: The transmission line from the Kuybyshev hydroelectric power station to Moscow was originally planned for 400 kV. It was, later on, however, decided to construct this line with a 500 kV operational voltage. This led to a bottleneck between the power transmission capacity of the 220 and 500 kV long-distance transmimission lines. It may be assumed that the utilization in a wide range of 330 kV long-distance transmission lines will lead to a considerable reduction of material consumption and expenditure. In order to gain a comprehensive and objective survey of this problem the data pertaining to 220,- 330- and 500 kV long--distance transmission lines with a length varying from 100-, 200-, 400, 600, 800 and 1000 km are confronted. For each distance the specific capital investment (Roubles/kW) and the costs of power transmission (kopecks/kW . hr) versus transmitted power

Card 1/3

functions are determined. The latter function, from 180 MW of transmitted power, varies stepwise. In transmissions not exceeding 400 km no feeding branch-off was envisaged. From lengths exceeding 600 km feeding branch-offs are included in the investigation. In all variants the same current density, about 0,8 A/mm^2 is assumed. The power factor is also assumed to be equal in all cases. It is rated at C,95. Summary: A voltage of 330 kV can be used not only in lines which are still to be erected, but also in the majority of existing 220 kV lines with an insufficient power transmission capacity and with too high power losses. The use of 220/330 kV auto transformers, operating in one unit with the line in some cases makes possible a conversion from one voltage to another without necessitating a re-designing of the substations and an installation of 330 kV circuit breakers. The use of 330 kV voltage offers especially good prospects for the connection between the united southern power supply system with the North and South Caucasus, which is still to be erected. The longest power transmission line of the world (across more than 600 km) connecting the Irkutsk Hydroelectric Power Station with Bratsk may also be taken

On the Suitability and the Ranges of Application of 330 kV Voltage SOV/105-58-10-17/28

into consideration for a conversion to a voltage of 330 kV. There are 2 figures, 5 tables, and 3 references, which are Soviet.

SUBMITTED: May 8, 1958

Card 3/3

8(3)

AUTHOR: Krachkovskiy, N. N., Candidate of Technical Sciences SOV/105-58-12-19/28

TITLE: Comparative Economic Estimation of Direct and Alternating Current Long-Distance Transmissions (Sravnitel'naya ekonomicheskaya otsenka dal'nikh peredach postoyannogo i peremennogo toka)

PERIODICAL: Elektrichestvo, 1958, Nr 12, pp 78-79 (USSR)

ABSTRACT: Referring to the article by A. I. Gershengorn, S. S. Rokotyan, P. Ye. Sandler in Elektrichestvo, 1958, Nr 5, it is pointed out that some of the initial data and the comparative method itself are dubious. Some unsolved problems are also mentioned. The amortizing times are then discussed. In conclusion, the author's calculations are found to be to the point that in consideration of present equipment costs, the direct current long-distance transmissions without intermediate energy consumption offer important advantages from about 700 km on. They are cheaper by 35-40% than alternating current transmissions.

Card 1/1

KRACHKOVSKIY, N.N., kand. tekhn. nauk.

Economic aspects of long and very long distance a.c. and d.c. Elek. sta. 29 no.10:64-70 O '58. (MIRA 11:11)
(Electric lines)

Krachkovskiy, N.N.

PHASE I BOOK EXPLOITATION SOV/3407

Akademiya nauk SSSR. Energeticheskiy institut im. G.M. Krzhizhanovskogo

Problemy energetiki; sbornik posvyashchayetsya akademiku G.M. Krzhizhanovskomu (Problems of Power Engineering; Collection of Articles Dedicated to Academician G.M. Krzhizhanovskiy) Moscow, 1959. 851 p. Errata slip inserted. 2,500 copies printed.

Eds. of Publishing House: B.D. Antrushin, P.V. Dubkov, P.I. Dubkov, and S.M. Moyzhes; Tech. Ed.: T.A. Prusakova; Editorial Board: A.V. Vinter, Academician (Deceased), V.I. Popkov (Resp. Ed.) Corresponding Member, Academy of Sciences USSR, V.I. Veyts, A.S. Predvoditelev, M.A. Styrikovich, K.F. Chukhanov, N.B. Bogianova, Candidate of Technical Sciences, B.K. Kozlov, Candidate of Technical Sciences, M.M. Lebedev, Candidate of Technical Sciences, and I.E. Semakhov.

PURPOSE: This collection of articles is intended as a tribute to the memory of Academician G.M. Krzhizhanovskiy.

COVERAGE: The collection contains sixty articles by former students and coworkers of the deceased Academician. The articles deal with problems of a wide range of subjects in the field of power engineering: problems of the regional development of electrical and thermal power engineering, power engineering technology, and the physics of combustion. No personalities are mentioned. References are given after most articles.

of

3/6

KRACHKOVSKIY, N.N.

8(6) PHASE I BOOK EXPLOITATION SOV/2582

Avramenko, F.D., V.I. Veyts, B.A. Gurevich, V.I. Denisov, A.G. Zakharin, N.A. Karaulov, I.S. Kolosov, N.N. Krachkovskiy, S.F. Kritskiy, M.M. Lebedev, T.I. Leont'yeva, N.P. Menkel', A.S. Nekrasov, G.I. Rossiyevskiy, and B.I. Shvorin

Osnovnyye voprosy planirovaniya yedinoy energeticheskoy sistemy SSSR (Basic Problems in Planning a Unified Power System for the USSR.) Moscow, Izd-vo AN SSSR, 1959. 174 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Energeticheskiy institut.

Eds.: G.M. Krzhizhanovskiy, Academician and V.I. Veyts, Corresponding Member, USSR Academy of Sciences; Tech. Ed.: S.G. Markovich.

PURPOSE: This book is intended for government planning circles, scientific research organizations and others interested in the electrification of the USSR.

COVERAGE: The book examines the principal problems of a unified power system for the USSR as a basis for a program of government planning in that field. It is the result of several years of study conducted mainly at the Power Engineering Institute of the Academy of Sciences, USSR, in cooperation with power engineering institutes of the individual Soviet Republics, universities and learned societies, and in close cooperation with the Gosplan, USSR. These studies are concerned with basic problems of a scientific nature and problems of technical policy for the prospective development of a unified electric power system in the USSR. The problems outlined are applicable when the planned system reaches an output of 1000 billion kwhr's which is scheduled for 1970. One of the results of the plan is that since it is possible to obtain higher installed capacities in a shorter time and at lower capital outlays by the construction of steam turbine electric power plants rather than hydraulic ones, the emphasis is now on building steam-turbine plants with a simultaneous slowdown in hydro-power developments, excepting the most economical ones or those which are the only or the main sources of power in a given region or are dictated by other needs, such as irrigation, river control, etc. Nuclear plants will play a steadily increasing role in the development of a unified power system. Several problems of a purely scientific and technical nature were prompted by the study of a unified system: problems of nuclear power stations, the application of high-speed electronic computers for automatic control, regulation and protection of the system, the increasing use of semiconductors, the use of various types of fuels, etc. These problems were presented in two earlier publications of the Academy of Sciences: Nauchnyye osnovy sozdaniya i razvitiya yedinoy energeticheskoy sistemy SSSR (Scientific Bases in the Creation and Development of a Unified Power System in the USSR; Conclusions of a Coordinating Conference, Moscow, 1957); and Razrabotka nauchnykh osnov razvitiya energeticheskikh sistem i ikh ob"yedineniya yedinoy energeticheskoy sistemy

KRACHKOVSKIY, N.N.

Discussing schemes of longitudinal compensation. Obshch. energ. no.1:89-100 '59. (MIRA 13:2)
(Electric power distribution)

BUTAKOV, I.N., doktor tekhn.nauk, prof.; ANDRYUSHCHENKO, A.I., doktor tekhn.nauk, prof.; KRACHKOVSKIY, N.N., kand.tekhn.nauk

In reference to the discussion on optimum steam parameters and characteristics of heat-transfer equipment. Energomashinostroenie 5 no.3: 19-22 Mr '59. (MIRA 12:3)

(Heat engineering)

KRACHKOVSKIY, N.N.

Connecting intermediate electric power districts with long-distance a.c. power transmission lines. Obshch. energ. no.3:96-106 '60. (MIRA 14:3)
(Interconnected electric utility systems)
(Electric power distribution)

ALBEGOV, M.M., inzh.; KRACHKOVSKIY, N.N., kand.tekhn.nauk

Comparing the economy of gas transportation with the transmission of electric power. Elek.sta. 31 no.1:30-35 Ja '60. (MIRA 13:5)
(Electric power distribution)
(Gas, Natural--Transportation)

KRACHKOVSKIY, N.N., kand.tekhn.nauk (Moskva)

Principal trends in carrying-out the overall electrification.
Elektrichestvo no.9:91-93 S '61. (MIRA 14:9)
(Electrification)

KRACHKOVSKIY, N.N. (Moskva)

Preliminary efficiency tests in the near-operational region of a d.c. electric power transmission line. Izv. AN SSSR. Otd. tekh. nauk. Energ. i avtom. no.3:20-31 My-Je '62. (MIRA 15:6)
(Electric power distribution—Direct current)

KRACHKOVSKIY, N.N., kand.tekhn.nauk (Moskva)

Tuned electric power transmission systems. Elektrichestvo no.7:79-81 Jl '62. (MIRA 15:7)
(Electric power distribution)

FO..OV, V.I.; ZAMARIN, A.G.; MARKOVICH, I.M.; TOLSTOV, Yu.G.; GUREVICH, B.A.; KRACHKOVSKIY, N.N.; LEBEDEV, N.N.; MIKHAYLOV, V.I.; DENISOV, V.I.; MOSKVITIN, A.I.; NEYEROVICH, E.A.; TELESHEV, B.A.; STEKOL'NIKOV, I.S.; LAPITSKIY, V.I.; KHLYSTER, I.M.

Veniamin Isaakovich Veits; obituary. Elektrichestvo no.4: 91-92 Ap '61. (MIRA 14:4)
(Veits, Veniamin Isaakovich, 1905-1961)

KRACHKOVSKIY, N.N., kand.tekhn.nauk

Concerning V.A.Venikov and IU.N.Astakhov's article "Construction of a cost scale for electric power transmission lines." Izv. vys. ucheb. zav.; energ. 6 no.4:121-122 Ap '63. (MIRA 16:5)

1. Energeticheskiy institut AN SSSR.
(Electric lines--Overhead) (Electric power distribution)

KRACHKOVSKIY, N.N., kand. tekhn. nauk

Prospects of utilizing the fuel power resources of Siberia and Central Asia for supplying power to the European part of the U.S.S.R. Teploenergetika 10 no.12:10-14 D '63.
(MIRA 17:8)

1. Energeticheskiy institut im. Krzhizhanovskogo AN SSSR.

KRACHKOVSKIY, N.N., kand.tekhn.nauk

Concerning G.N.Aleksandrov's article "Trends in the development of high-tension engineering." Izv.vys.ucheb.zav.; energ. 8 no.3:110-112 Mr '65. (MIRA 18:4)

1. Energeticheskiy institut imeni G.M.Krzhizhanovskogo.

KRACHKOVSKIY, N.N., kand. tekhn. nauk

Carrying capacity of power transmission lines from a thermal electric power plant. Elek. sta. 36 no.1:77-79 Ja '65.
(MIRA 18:3)

1. Energeticheskiy institut imeni G.M. Krzhizhanovskogo.

KRACHKOVSKIY, N.N., kand. tekhn. nauk

Transmission of electric power at great distances. Prospects for increasing the voltages of overhead power transmission lines. Elektrichestvo no.1:84-87 Ja '65. (MIRA 18:7)

KRACHKOVSKIY, N.N., kand. tekhn. nauk

Concerning the problem: Does the development of high-voltage technology lead to direct current? Izv. vys. ucheb. zav.; energ. 9 no.1:96-98 Ja '66. (MIRA 19:1)

1. Energeticheskiy institut imeni G.M. Krzhizhanovskogo.
Submitted May 25, 1965.

KRACHKOVSKIY, S.

Sistemy funktsiy. Integral'nyye uravneniya. Riga, Dissertatsiya (1946).

SO: Mathematics in the USSR, 1917-1947
Edited by Kurosh, A. G.,
Markusevich, A. I.
Rashevskiy, P. K.
Moscow-Leningrad, 1948

KRACHKOVSKIY, S.N.

Kračkovskiĭ, S. N., and Gol'dman, M. A. Null elements and null functionals of completely continuous operators. Latvijas PSR Zinātņu Akad. Vēstis 1950, no. 6 (35), 87-100 (1950). (Russian. Latvian summary)

This paper extends to linear normed spaces some of the nondeterminental results of Fredholm integral equation theory, following in particular ideas developed by F. Riesz for special spaces [Acta Math. 41, 71-98 (1916)]. The results seem to be well known for the most part [cf. Banach, Théorie des opérations linéaires, Warsaw, 1932, chap. 10; Hildebrandt, Bull. Amer. Math. Soc. 37, 185-212 (1931), especially pp. 196-202].

J. V. Wehausen.

Source: Mathematical Reviews, Vol 13 No. 3

KRACHKOVSKIY, S. N.

Mathematical Reviews
May 1954
Analysis

10-7-54
LL

Kračkovskiĭ, S. N., and Gol'dman, M. A. Some properties of a completely continuous operator in Hilbert space. Latvijas PSR Zinātņu Akad. Vēstis 1950, no. 10(39), 93–106 (1950). (Russian. Latvian summary)

For the most part this paper provides proofs for theorems announced elsewhere [Doklady Akad. Nauk SSSR (N.S.) 70, 945–948 (1950); these Rev. 11, 600 (we follow the notation of this review)]. Additional material includes a discussion of the "absolute norm" $N(\mathfrak{A})$ of a completely continuous operator. Here $N^2(\mathfrak{A}) = \sum_1^\infty \|\mathfrak{A}x_\rho\|^2$ where x_ρ is any closed orthonormal set of elements of H [cf. Smirnov, A course of higher mathematics, vol. 5, Gostehizdat, Moscow-Leningrad, 1947, p. 392 ff.; these Rev. 9, 574]. It is shown that $N(\mathfrak{A}_2) < N(\mathfrak{A})$ if $\mathfrak{A}_1 \neq 0$ and $N(\mathfrak{A}_2) < \infty$, that $N^2(\mathfrak{A}_1) \geqq \sum_1^\infty |\lambda_\rho|^{-2}$, where the λ_ρ's are eigenvalues of $\mathfrak{A}$ and occur with a multiplicity equal to the dimension of the corresponding null-space. For the space L^2, if $N(\mathfrak{A})$ is finite then $\mathfrak{A}$ may be represented as an integral operator.

J. V. Wehausen (Providence, R. I.)

1. KRACHKOVSKIY S.N.

2. USSR (600)

4. Spaces-Generalized

7. Canonical concept of the resolvent of a totally continuous operator, Latv. PSR Zin.Akad.Vestis no.6, 1951.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, unclass.

KRACHKOVSKIY, S. N.

USSR/Mathematics - Convexity of Space May/Jun 52

"One Criterion Governing the Uniform Convexity of Space of Type B," S. N. Krachkovskiy, A. A. Vinogradov

"Uspekh Matemat Nauk" Vol VII, No 3 (49), pp 131-134

A space of type B is called uniformly convex (according to S. L. Sobolev, "Application of Functional Analysis to Mathematical Physics," Leningrad State U, 1950) if for every epsilon e one can indicate a delta d(e) such that the conditions //x//= //y//=1, //x-y//≥e necessitates //(x+y)/2//≤1 - d(e). Geometrically this means that if the lengths of

218T68

USSR/Mathematics - Convexity of Space May/Jun 52 (Contd)

chords of a unit sphere exceed a certain pos number then the av of these chords is within a certain sphere with radius less than unity. Demonstrates relevant theorems. Submitted 17 Jan 52.

218T68

KRACHKOVSKIY, S. N.

PA 234T80

USSR/Mathematics - Fredholm Region 1 Sep 52

"Null Elements of a Linear Operator in Its Fredholm Region," M. A. Gol'dman, S. N. Krachkovskiy

"Dok Ak Nauk SSSR" Vol 86, No 1, pp 15-17

Investigate the Fredholm region of a linear operator A (distributive and bounded, defined in a complex space R of type B and reflecting R into itself) in connection with its null elements (see F. Riss /Riesz/, "Uspekhi Matemat Nauk" Vol 1, 1936). Submitted by Acad V. I. Smirnov 3 Jul 52.

234T80

KRACHKOVSKIY, S.N.

Mathematical Reviews
Vol. 14 No. 11
Dec. 1953
Analysis

4

Kračkovskiĭ, S. N. Canonical representation of null elements of a linear operator in its Fredholm region. Doklady Akad. Nauk SSSR (N.S.) 88, 201–204 (1953). (Russian)

Let A be a linear bounded transformation of a complex Banach space into itself. Let $T_\lambda = I - \lambda A$, I the identity, and let Φ_A be the Fredholm region for A (see the review cited below for definitions). In an earlier paper of Gol'dman and Kračkovskiĭ [same Doklady (N.S.) 86, 15–17 (1952); these Rev. 14, 478] it was shown that the components of Φ_A may be divided into two mutually exclusive classes; each component in the second of these classes contains only λ's which are eigenvalues and for which the dimension of the set of null elements $N(\lambda)$ is infinite. For such a λ the author takes a basis for $N(\lambda)$ as follows:

$$x_k^{(1)}, x_k^{(2)}, \cdots \qquad (k=1, 2, \cdots, s),$$
$$x_k^{(1)}, x_k^{(2)}, \cdots, x_k^{(r_k)} \qquad (k=s+1, \cdots, s+p),$$

where

$$T_\lambda x_k^{(1)} = 0, \quad T_\lambda x_k^{(2)} = -x_k^{(1)}, \cdots \qquad (k=1, 2, \cdots, s),$$
$$T_\lambda x_k^{(1)} = 0, \quad T_\lambda x_k^{(2)} = -x_k^{(1)}, \cdots,$$
$$T_\lambda x_k^{(r_k)} = -x_k^{(r_k-1)} \qquad (k=s+1, \cdots, s+p).$$

Here p may be zero, but s cannot be zero. The author proves the following theorem: The number s is the same for all λ's from the same component in the second class. As the author points out, essentially the same result was also found by Gohberg [ibid. 78, 629–632 (1951), p. 629; these Rev. 13, 46].

J. V. Wehausen (Providence, R. I.).

KRACHKOVSKIY, S. N.

Mathematical Reviews
May 1954
Analysis

10-7-54

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(2)

Kračkovskiĭ, S. N. On properties of a linear operator connected with its generalized Fredholm region. Doklady Akad. Nauk SSSR (N.S.) 91, 1011–1013 (1953). (Russian)

In a previous paper [same Doklady (N.S.) 88, 201–204 (1953); these Rev. 14, 1095] the author has associated with each eigenvalue of a bounded linear transformation A of a complex Banach space into itself integers s, p and r_k. In this paper he defines analogous integers t, q and ν_k for the adjoint operator A^* and shows that $p=q$ and $r_k=\nu_k$, $k=1, \cdots, p$, and that the numbers s and t are constant for λ's from the same component of the generalized Fredholm region S_A (i.e. the set of λ's for which $I-\lambda A$ is a generalized Fredholm operator [see the review of Atkinson, Mat. Sbornik (N.S.) 28(70), 3–14 (1951); these Rev. 13, 46]). It was known that the index of T_λ $(=s-t)$ is constant in each component of S_A.

J. V. Wehausen (Providence, R. I.).

KRACHKOVSKIY, S. N.

USSR/Mathematics

Card : 1/1

Authors : Krachkovskiy, S. N.

Title : Expanded zone of singularity of the $T_\lambda = E - \lambda A$ operator

Periodical : Dokl. AN SSSR, 96, Ed. 6, 1101 - 1104, June 1954

Abstract : The expansion of the singularity zone of a $T_\lambda = E - \lambda A$ operator is explained with the aid of mathematical formulas. The singularity zone is obtained not through the expansion of components which constitute that zone but by the addition of new components in which the numbers s and r are constant and one of these components equals ∞. This result about the singularity was established for a zone $S_a \subset \varphi_a$ with the aid of a known theorem regarding the index of an iterated operator. Five references.

Institution : ...

Presented by : Academician V. I. Smirnov, April 5, 1954

BOURBAKI, Nicolas, pseud.; KRACHKOVSKIY, S.N.[translator]; MAYKOV, D.A., red.

[General topology; basic structures] Obshchaia topologiia; osnovnye struktury. Pod red. D.A.Raikova. S predisl. P.S. Aleksandrova. Moskva, Gos.izd-vo fiziko-matem. lit-ry, 1958. 324 p.

(Topology) (MIRA 14:12)

BOURBAKI, Nicolas, pseud.; KRACHKOVSKIY, S.N.[translator]; RAYKOV, D.A., red.

[General topology; groups and spaces related to numbers] Obshchaia topologiia; chisla i sviazannye s nimi gruppy i prostranstva. Pod red. D.A.Raikova. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1959. 247 p. (MIRA 14:12)
(Topology)

GOL'DMAN, M.A.; KRACHKOVSKIY, S.N.

Invariance of certain spaces related to the $A - \lambda I$ operator. Dokl. AN SSSR 154 no. 2:500-502 Ja '64. (MIRA 17:5)

1. Predstavleno akademikom V.I.Smirnovym.

GOL'DMAN, M.A.; KRASNOSEL'SKIY, M.A.

Some perturbations of a closed linear operator. Dokl. AN SSSR 158 no.3: 507-509 S '64. (MIRA 17:10)

1. Predstavleno akademikom V.I.Smirnovym.

GOL'DMAN, M.A.; KRACHKOVSKIY, S.N.

The d-characteristic of a linear operator. Dokl. AN SSSR 165 no.3:476-478 N '65. (MIRA 18:11)

1. Submitted April 9, 1965.

BLAZHEK. I.Ya. [Blazek, J.]; KRACHMAR, I. [Kracmar, J.]

Spectrophotometric determination of cytostatics from the dichloroethylamine group (dopan and sarcolysine) in the ultraviolet region. Farmatsev.zhur. 20 no.1:22-25 '65. (MIRA 18:10)

1. Gosudarstvennyy kontrol'nyy institut lekarstvennykh sredstv (direktor inzh. Ya.Burianik), Praga.

KRACHMAR, I. [Kracmar, J.]; BLAZHEK, I. [Blazek, J.]

Ultraviolet spectrophotometry and its use in the evaluation of drugs. Aptech. delo 12 no.3:69-73 My-Je '63 (MIRA 17:2)

1. Gosudarstvennyy kontrol'nyy institut lekarstvennykh sredstv v Prage.

KRAUTER, H.

Experience in testing welded seams with ultrasonic waves. p. 200. (Zvaranie, Vol. 3, no. 7, July 1954, Praha.)

SO: Monthly List of East European Accession, (EEAL), LC, Vol. 4, No. 11, Nov. 1955, Uncl.

POLOTEBNOVA, N.A., dotsent; KRTIL, I.; KAVITSKAYA, F.Kh.; KRACHUN, S.V.

Heteropoly acids in the analysis of organic compounds.
Uch.zap.Kish.un. 68:71-78 '63 [cover '64].

(MIRA 18:12)

KRACHUN, T.

RUMANIA/Cultivated Plants - Grains.

Abs Jour : Ref Zhur - Biologiya, No 16, 25 Aug 1957, 69228 L-2

Author :
Inst :
Title : The Influence of Agricultural Background on the Quality of Corn Hybrids.

Orig Pub : Probl. agric., 1956, 8, No 12, 34-51

Abstract : The experiments were conducted in seven variants with F_2 and F_3 seeds of local specimens Moara Domnyaska X Ikar 54 and Dobrodzhan Ikar 54 in F_1 and F_2. The preservation of heterosis in F_2 and F_3 was established. The physical properties and chemical composition of seed of corn hybrids were studied.

Card 1/1

KRACHUNOV, Khristo, khimik; TARLANSKI, Marin, inzh.

Introduction of alkali-activated bentonite in the injection of foundations for the Kurdzhali Dam. Khidrotekh i melior 8 no.4:124-126 '63.

KRACHUNOV, M.

Case of malignant melanoma of the thumb. Khirurgiia, Sofia 7 no.7: 445-447 1954.

(MELANOMA, thumb) (THUMB, neoplasms, melanoma)

COUNTRY : BULGARIA
CATEGORY : Chemical Technology. Chemical Products and Their Applications. Ceramics. Binding Materials. H
ABS. JOUR. : RZhKhim., No 17, 1959, No. 61621
AUTHOR : Buchvarov, Kh.; Boradzhiev, M.; Krachunov, Kh.;**
INSTITUTE : -
TITLE : Water Stability of Cement.
ORIG. PUB. : Khimiya i industriya (Bulg.), 1958, 30, No 5, 130-135

ABSTRACT : Water stability of cements (C) with the addition of sand, limestone, glass, slags, bentonite and others was investigated. Presented are chemical compositions and other characteristics of additives. Described is the method for the determination of water stability -- by the quantity of $Ca(OH)_2$ removed from C. It is indicated that with the increased content of sand and limestone, % of

**Stiynov, V.

*Concrete.

Card: 1/2

CATEGORY :
ABS. JOUR. : RZhKhim., No 17, 1959, No. 61621 H
AUTHOR :
INSTITUTE :
TITLE :
ORIG. PUB. :

ABSTRACT Con'd : $Ca(OH)_2$ leached out is increased. With the increased content of bentonite and slags, % of $Ca(OH)_2$ lost is reduced. The investigation covered water stabilities of clinkers of the Bulgarian factories. Their physico-chemical properties and without additives have the highest losses of $Ca(OH)_2$. Quantities of $Ca(OH)_2$ leached out from different C (without additives) depend on the C_3S/C_2S ratio, with the increase of which water stabilities of C decrease. The highest water stability was of the slag-portland cement mixtures.

-- Ya.Satunovskiy.

Card: 2/2

KRAČIK, J.

CZECH

The Use of Insulated Risers for Steel Castings. V. Batěk, A. Šimko, and J. Kračík. (*Slévárenství*, 1954, 2, [9], 267-270). [In Czech]. The preparation and use of insulating material made from fly ash is described. Carburization of the risers is prevented and metal losses are reduced with this insulation. Prefabrication of liners in the form of dried sleeves, or lining in situ with subsequent drying are two possible methods of applying the insulation.—P. F.

Kracik, Jiri

CZECHOSLOVAKIA / Electronics H

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9822

Author : Kracik, Jiri
Inst : Physics Faculty, CVUT, Prague, Czechoslovakia
Title : Complex Conductivity of Plasma of an Arc Discharge, Maintained by DC.

Orig Pub : Ceskosl. casop. fys, 1956, 6, No 3, 264-276

Abstract : The Boltzmann kinetic equation is solved and the distribution function is found for the velocity of the electrons for the case, when the plasma is maintained by dc, in which there is superimposed a high frequency signal that is so small that it cannot affect the energy balance of the burning discharge. The distribution function contains four functions, f_0, f_1, g_1, and g_2, where f_0 is the fundamental function, in terms of which all the remaining are expressed. The function f_1 corresponds to the dc, and the functions g_1 and g_2

Card : 1/4

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000826010008-6

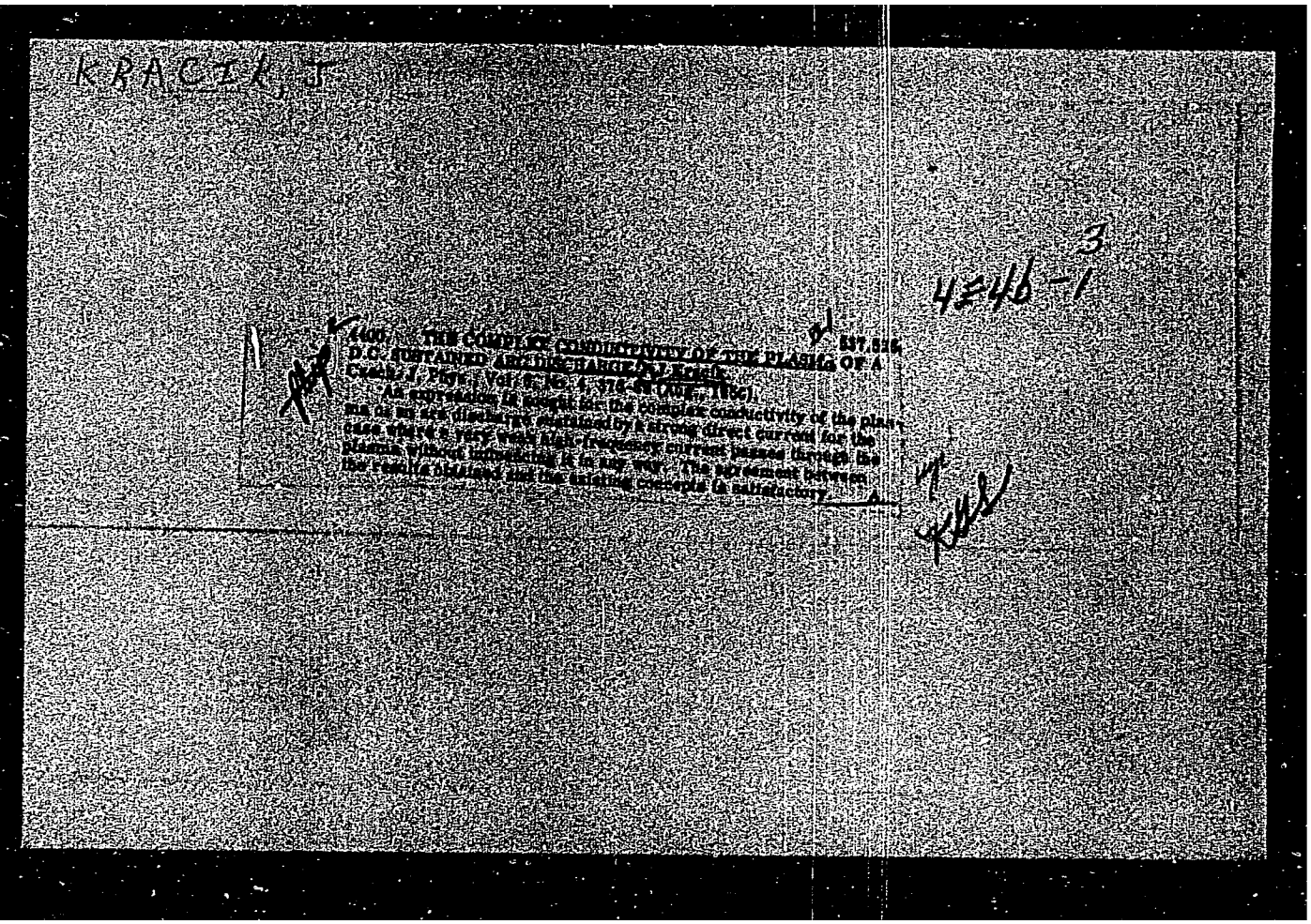
CZECHOSLOVAKIA / Electronics H

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9822

Abstract : describe the behavior of the electrons with allowance for the high frequency electric field. All four functions are connected by the well known Lorentz relations. In the solution, one employs the following conditions: $f_0 \gg f_1$; $f_1 \gg g_0$, and $f_1 \gg g_2$. Using the distribution function so obtained, the author calculates the conductivity of the plasma both for dc as well as for a high frequency signal.

Of importance in the solution is the expression for the mean free path in terms of the function of the velocity and the number of terms of the initial kinetic equation. It is proposed that the plasma in an arc discharge is spatially homogeneous; there exists no magnetic fields that effect the behavior of the electrons; the number of inelastic collisions per unit time is very small compared with the number of elastic collisions; the number of newly-produced elec-

Card : 2/4



KRACIK, J.

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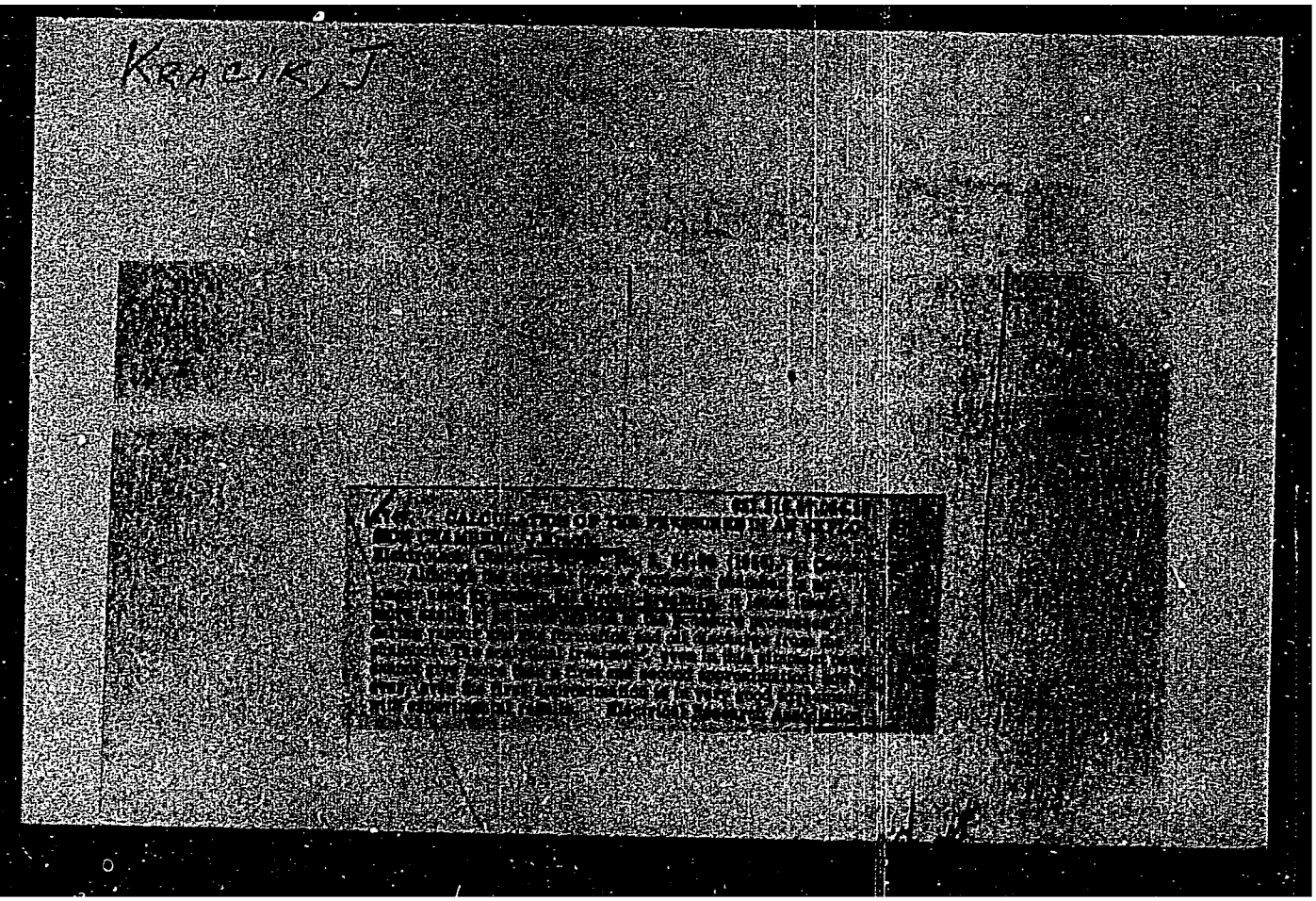

Kracik, J.

Vladimir Pilat's Navodyk zadladnim fysikalnim merenim (Instructions for Basic Physical Measurements); a book review. p. 329 ELEKTROTECHNICKY OBZOR (Ministerstvo strojirenstvi a Ministerstvo paliv a energetiky) Praha. Vol. 45, no.6, June 1956.

Source: EEAL LC Vol. 5, No. 10 Oct. 1956

KRACIK JIRI

CZECHOSLOVAKIA/Electronics - Electrical Discharges in Gases and Gas Discharge Apparatuses H-7

Abs Jour : Ref Zhur - Fizika, No 3, 1958, No 6385

Author : Kracik Jiri
Inst : Chair of Physics of the Electrical Engineering Faculty, Prague, Czechoslovakia
Title : Dependence of the Temperature of the Positive Low Pressure Column on the Radius

Orig Pub : Ceskosl. casop. fys., 1957, 7, No 4, 352-360

Abstract : The continuity equation and the conditions of energy balance are used to find the dependence of the concentration and of the temperature of electrons on the radius of the positive column of low pressure. The distributions of the concentration of the electrons and their temperature over the radius of the positive column depends on the conditions on the discharge axis. These conditions in turn depend on the voltage but not on the current flowing through the discharge. When the voltage increases, the discharge becomes narrower around its axis, for example, at a pressure of 10^{-2} mm mercury, and a

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CZECHOSLOVAKIA/Electronics - Electrical Discharges in Gases and Gas Discharge Apparatuses H-7

Abs Jour : Ref Zhur - Fizika, No 3, 1958, No 6385

voltage of 1200 v, and at a resistance $R_{ext} = 10^5$ ohms, the discharge tube, according to theory, should have a radius R = 1 cm and a length of 25 cm. In this case the calculations agree with the experimental data. For V = 6,000 and 12,000 v, the approximation used is not applicable. Bibliography, 19 titles.

Card : 2/2

KRACIK J

KRACIK, J.

CZECHOSLOVAKIA/Electronics - Gas Discharge and Gas Discharge Apparatus H-7

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 6193

Author : Kracik Jiri
Inst : Physics Chair of the Electrotechnical Faculty, Prague, Czechoslovakia
Title : Time Dependence of the Electron Temperature of a Low Pressure Discharge During Variation of the Source Voltage

Orig Pub : Ceskosl. casop. fys., 1958, 8, No 3, 350-356

Abstract : The author calculates the variation in the electron temperature and the concentration of the electrons of a glow discharge at low pressure, stabilized by an ohmic resistance as a function of the small variations in the voltage of the external source. A solution by obtained by integrating the differential equation that describes the variation in the electron temperature. A small periodic change in thesource voltage causes a change in the electron temperature, in the electron concentration, in the intensity of the electric field, and in the current. The phase difference between the varia-

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CZECHOSLOVAKIA/Electronics - Gas Discharge and Gas Discharge Apparatus H-7

Abs Jour : Ref Zhur - Fizika, No 4, 1959, No 6193

tions in the electron temperature and the source voltage increases with increasing frequency. The author obtains the dependence of the variation of the electron temperature on the pressures of a neutral gas. Bibliography, 11 titles.
S.F. Shushurin

Card : 2/2

CZECHOSLOVAKIA/Electronics - Electrical Discharges in Gases and Gas Discharge Apparatus. H

Abs Jour : Ref Zhur Fizika, No 10, 1959, 23054

Author : Kracik, Jiri

Inst : Chair of Mathematical Physics, Radio Engineering Faculty, CVUT, Czechoslovakia

Title : Hysteresis of Discharge at Low Pressure with Stabilizing Impedance

Orig Pub : Elektrotechn. obzor, 1958, 47, No 6, 312-315

Abstract : The author investigated the hysteresis properties of a discharge and the occurrence of damped oscillations at low pressure in the case when the discharge is connected in the current source circuit in series with an active resistance and an inductance. Use is made here of the small variation of the investigated quantities.

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CZECHOSLOVAKIA/Electronics - Electrical Discharges in Gases and Gas Discharge Apparatus. H

Abs Jour : Ref Zhur Fizika, No 10, 1959, 23054

The results obtained have shown the absence of changes in the concentration and temperature of the electrons, in the intensity of the electric field, and in the magnitude of the current as functions of the changes in the source voltage. The results of the calculations, concerning the occurrence of damp oscillations, their damping, and the limiting frequencies of the hysteresis of the discharge are in agreement with the experimental data.

Card 2/2

KRACIK, J.

4th International Conference on Ionization Phenomena in Gases, p. 726

SLABOPROUDY OBZOR. (Ministerstvo presneho strojirenstvo, Ministerstvo spoju a Vedecka Technicka spolecnost pro electrotechniki pri CSAV) Praha, Czechoslovakia, Vol. 20, no. 11, Nov. 1959

Monthly List of East European Accessions (EEAI), LC, Vol. 9, no. 1, Jan, 1960

Uncl.

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9.3150

Z/037/60/000/005/016/056
E192/E382

AUTHORS: Bakule, R., Šícha, M., Veselý, V. and Kracík, J.

TITLE: Complex Conductivity of Plasma in a DC Glow Discharge in Neon

PERIODICAL: Ceskoslovensky casopis pro fysiku, 1960, No. 5, p. 408

TEXT: The measurement of the concentration and collision frequency in the positive column of a DC glow discharge in neon by the high-frequency method is described. The results of the measurements show that the expression for the complex conductivity of plasma derived by Fange is applicable to the positive column of a DC glow discharge. It is also shown that the measurements can also be analysed by means of the Lorenz formula which is simpler for numerical calculations. The electron concentration evaluated from this formula is (within the range of experimental error) similr to that calculated from the Fange expression.

ASSOCIATIONS: Katedra elektroniky a vakuové fysiky Karlovy university, Praha (Chair of Electronics and Vacuum Physics of Charles University, Prague)
Fysikální ústav ČVUT, Poděbrady (Physics Institute of ČVUT, Poděbrady.

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Z/037/60/000/005/018/056
E192/E382

AUTHOR: Kracík, J.

TITLE: Rotating Beam in a Low-pressure Discharge

PERIODICAL: Československý časopis pro fysiku, 1960, No. 5, p. 409

TEXT: It is known that under certain conditions it is possible in a low-pressure discharge to obtain a bright beam which is rotating irregularly (or sometimes regularly). These conditions were investigated theoretically and experimentally. It was found that the appearance of a rotating beam necessitates the presence of negative ions in the gas filling of a discharge tube. The conditions necessary for the uniform rotation of a beam are that the negative ions have a low mobility. This was confirmed by means of a special discharge tube and it was found that the rotation can exist over a small range of currents. On the basis of the above investigation it was possible to explain the reasons for the inadequacy of some electric bulbs; it was found that one of

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Z/037/60/000/005/018/056
E192/E382

Rotating Beam in a Low-pressure Discharge

the components of the solvent employed resulted in the appearance of heavy negative particles having a low mobility.

ASSOCIATION: Fysikální ústav fakulty radiotechniky ČVUT, Poděbrady (Physics Institute of the Radio-engineering Faculty of the Czechoslovak Technical University, Poděbrady)

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27830

Z/028/60/000/006/002/003
D244/D303

94.2120 (1538, 1538)

AUTHOR: Kračík, Jiří

TITLE: Physical laws of plasma

PERIODICAL: Pokroky matematiky, fysiky a astronomie, no. 6, 1960, 676-697

TEXT: This article refers to three previous papers of this periodical (nos. 3 and 5, 1960) dealing with the theory and laws of plasma, and is concerned with the kinetic equation (from Liouville's theorem) and formulae arising from it, all based on work in the laboratory as opposed to "space". The laboratory plasma is in many ways different, e.g. it is non-isothermic. Four basic relations describe the behavior of laboratory plasma (apart from the Maxwell - Lorentz equations): These are: a) Boltzmann' kinetic laws (corrected);b) The laws of continuity; c) The laws of momentum (Euler); d) The law on the continuity of energy. For a) a number of equations are developed and

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Physical laws of plasma

$\frac{\partial f}{\partial t} + [f; H_1] = \left[\frac{\partial f}{\partial t}\right]$. (16)' is compared with Eq. (29) in A. Hruška's work (Ref.7: Pokroky matem., fys.,astron. V. (1960), 308, č. 3); it is further stated that direct derivation from Liouville's theorem is also possible. For b) and c) again reference is made to A. Hruška (Ref. 7: Op. cit.) Formulae are derived e.g.

$n(r,t) = \int_{(c)} f(r,c,t)\, dC$ (18) and compared with Hruškas' work. Differences caused by the different plasma are pointed out, e.g. $\frac{\partial n_i}{\partial t} + \nabla_{(r)} \cdot (n_i \bar{u}_i) = J_i - R_i$. (23)

and $s_i \frac{d\bar{u}_i}{dt} = n_i \bar{F}_i - \sum_{\beta=1}^{3} \sum_{\alpha=1}^{3} e_\alpha^\circ \frac{\partial}{\partial x_\beta} (s_i \overline{v_\alpha v_\beta}) + m_i \int_{(c)} \left[\frac{\delta f_i}{\delta t}\right] v\, dC$. (24)

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Physical laws of plasma

and these are compared with formulae (40) in Hruška (Ref. 7: Op.cit.) For d) law

$$\int_{(x)} s_i \mathbf{r} \times \frac{d\bar{u}_i}{dt}\, dX = \int_{(x)} n_i \mathbf{r} \times \bar{F}_i\, dX - \sum_{\alpha}\sum_{\beta}\int_{(x)} \mathbf{r} \times \mathbf{e}_\alpha^0 \frac{\partial}{\partial x_\beta}\left(s_i \overline{v_\alpha v_\beta}\right) dX + \int_{(x)} \mathbf{r} \times \bar{P}_i\, dX \qquad (33)$$

is derived, and again it is shown that these laws follow from Liouville's theorem. On macroscopic speed, the result is in the form of

$$f_e^{(1)} = \frac{e_0\lambda_e}{m_e v}\frac{\partial f_e^{(0)}}{\partial v}\frac{\mathbf{E} - \frac{1}{c_0}\frac{e_0\lambda_e}{m_e v}(\mathbf{E}\times\mathbf{B}) + \left(\frac{1}{c_0}\frac{e_0\lambda_e}{m_e v}\right)^2(\mathbf{E}\cdot\mathbf{B})\,\mathbf{B}}{1+\left(\frac{1}{c_0}\frac{e_0\lambda_e}{m_e v}B\right)^2} -$$

$$-\lambda_e\frac{\sum_\alpha \frac{\partial f_e^{(0)}}{\partial x_\alpha}\mathbf{e}_\alpha^0 - \frac{1}{c_0}\frac{e_0\lambda_e}{m_e v}\left(\sum_\alpha \frac{\partial f_e^{(0)}}{\partial x_\alpha}\mathbf{e}_\alpha^0 \times \mathbf{B}\right) + \left(\frac{1}{c_0}\frac{e_0\lambda_e}{m_e v}\right)^2\left(\sum_\alpha \frac{\partial f_e^{(0)}}{\partial x_\alpha}B_\alpha\right)\mathbf{B}}{1+\left(\frac{1}{c_0}\frac{e_0\lambda_e}{m_e v}B\right)^2}. \qquad (47)$$

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Physical laws of plasma

Z/028/60/000/006/002/003
D244/D303

There are 8 references: 7 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: S. Chapman, T.G. Cowling, The mathematical theory of non-uniform gases, Cambridge, 1953..

ASSOCIATION: ČVUT, Praha

Card 4/4

Z/039/61/022/001/002/006
E192/E382

AUTHORS: Kocian, Pavel and Kracík, Jiří, Docent

TITLE: The Conditions of Appearance of a Striated Low-pressure Discharge

PERIODICAL: Slaboproudý obzor, 1961, Vol. 22, No. 1, pp. 16 - 19

TEXT: It is known that a striated discharge can be obtained if the gas in the discharge tube contains some heavy negative ions. The problem of producing such discharges was investigated experimentally. The discharges were studied in argon, mixed with a compound P-85 which consisted of acetone, amylacetate and nitrocellulose (this material is used as the binder for activating materials on tungsten electrodes). The results of the experiments are shown in six graphs and seven photographs. The conditions of the appearance of a striated dischage were investigated as a function of voltage, diameter of the discharge tube and the total pressure (argon + P-85) and partial pressure of P-85. A typical set of experimental graphs is shown in Fig. 1.

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Z/039/61/022/001/002/006
E192/E382

The Conditions of Appearance of a Striated Low-pressure Discharge

These give the discharge current as a function of the total pressure (argon + P-85) at which the striations appear. The measurements were carried out with AC and DC and it was found that in both cases the discharge was of the same type. The discharges represented in Fig. 1 were carried out at various argon pressures (ranging from 0 to 8.1 tor). From the graphs it is concluded that as the pressure of P-85 is increased, i.e. the number of heavy particles is increased, the striations are easier to obtain. On the other hand, when the partial pressure of argon is increased, the ability of the discharge to produce striations is reduced. Thus, at 7 tor pressure (2 tor of argon) the striations appear at 3.3 mA; on the other hand, for the same pressure of P-85 but with argon pressure of 4.1 tor, the striations are obtained at 8.9 mA. The striations can be in the form of a regular or irregular helix or of separate striae. The

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Z/039/61/022/001/002/006
E192/E382

The Conditions of Appearance of a Striated Low-pressure Discharge

voltage across the electrodes of the discharge tube as a function of the overall pressure was also investigated for various argon pressures. It was found that, in general, the appearance of the striations could be effected at lower voltages as the partial pressure of P-85 was increased. By measuring the dependence of the discharge current on the diameter of the discharge tube it was found that by increasing the diameter of the tube the striations would be produced more easily than in small-diameter tubes. Rotating striations were also observed over a certain narrow range of currents and pressures but this phenomenon was not investigated in detail. There are 13 figures and 11 references: 5 Czech and 6 non-Czech.

ASSOCIATION: Fyzikální ústav elektrotechnické fakulty, Poděbrady (Physics Institute of the Electrotechnical Division, Poděbrady)

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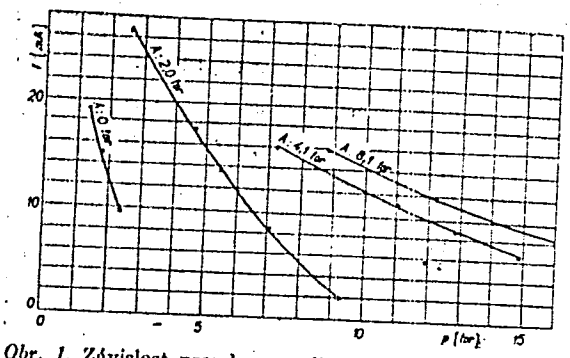
Z/039/61/022/001/002/006
E192/E382

The Conditions of Appearance of a Striated Low-pressure Discharge

Fig. 1:



Obr. 1. Závislost proudu na celkovém tlaku ve výbojové trubici při vzniku provazcového výboje.
Závislost zkoumána při různých tlacích základní atmosféry (argonu).

SUBMITTED: May 12, 1960
Card 4/4

26.1520

Z/039/62/023/012/001/004
E192/E382

AUTHOR: Kracík, Jiří, Doctor Engineer, Candidate of Sciences

TITLE: Contribution to the theory of the spiralling discharge in luminescent tubes

PERIODICAL: Slaboproudý obzor, v. 23, no. 12, 1962, 675 - 679

TEXT: It was shown by various authors (Kracík et al - Československý časopis pro fyziku, 10, 1960, no. 1, 81-82; Czechoslovak Journal of Physics B10, 1960, no. 4, 772-774) that the presence of heavy negative ions in low-pressure discharges leads to the appearance of bright, helical "beams" (Fig. 1). Under certain conditions, such helices can rotate at a low uniform velocity. An attempt is made to analyse the problem since the theory of such rotating spirals is non-existent. The basic equations of the system are the continuity and motion equations for the i-th type of particle; these are as follows:

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Contribution to ....

Z/039/62/023/012/001/004
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$$\frac{\partial n_i}{\partial t} + \nabla \cdot (n_i \underline{u}_i) - \sum_k \alpha_{ik} n_k = 0$$

$$\frac{d\underline{u}_i}{dt} = \frac{e_{0i}}{m_i}\left(\underline{E} + \frac{I}{c_0}\,\underline{u}_i \times \underline{H}\right) - \frac{1}{3} v_{efi}^2 \frac{\nabla n_i}{n_i} - \nu_i \underline{u}_i \qquad (1)$$

$$i = e, p, n .$$

The electrical field $\underline{E}$ and magnetic field $\underline{H}$ in these can be determined from the Maxwell equations. The other symbols are as follows: n_i concentration; $\underline{u}_i$ macroscopic velocity; e_{0i} charge; m_i mass; v_{efi} effective thermal velocity and ν_i collision frequency for the particles of the i-th kind; c_0 is the velocity of light and α_{ik} the recombination or ionization coefficient. The subscript i in Eqs. (1) becomes

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Contribution to 2/039/62/023/012/001/004
E192/E382

e for electrons, p for positive ions and n for negative ions. The approximate solution of Eqs. (1) for a cylindrical discharge tube of radius R_o shows that a slowly, uniformly rotating helical discharge can appear when under equilibrium conditions all the charged particles move along common trajectories, even if their velocities are different. The rotation period of the helix is approximately equal to the time required by the negative ions to traverse the pitch length λ; thus, in fact, the helix does not rotate but moves from one electrode to the other. If this motion is observed from a fixed point, it appears to be rotation. These circumstances explain the very narrow pressure and current ranges at which the uniform rotation is observed. To this extent the theory is in agreement with experiment. There are 4 figures.

ASSOCIATION: Fyzikální ústav elektrotechnické fakulty ČVUT, Odděrady (Physics Institute of the Electrical-Engineering Department, CVUT, Odděrady)

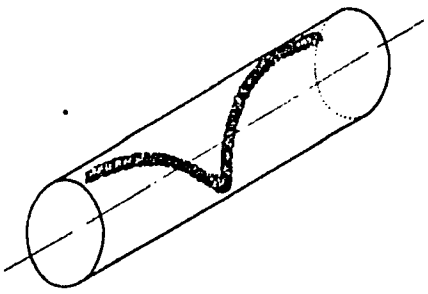
SUBMITTED: June 23, 1962

Card 3/4

Contribution t

Z/039/62/023/012/001/004
E192/E382

Fig. 1:



Card 4/4

Z/055/62/012/009/004/005

AUTHORS: Kracik, J., Kocian, P.

TITLE: The influence of a magnetic field on the rotation and shape of threads in a thread discharge

PERIODICAL: Czechoslovak Journal of Physics, v. 12, no. 9, 1962, 719-720

TEXT: It is known, for example from [1] and [2], that if there is a high-molecular substance in the discharge space of a glow discharge, a thread is produced in the positive column. In the general case the thread is irregular in shape and performs irregular motion. Only in a narrow current and pressure interval can slow uniform rotation of a more or less regular, helical-shaped thread be attained, this being made possible by the intrinsic magnetic field of the discharge. Since the intrinsic magnetic field is small, it follows that the thread, its motion and shape can be influenced by even quite a small external magnetic field. This has been experimentally proved. A substance, known in engineering as P-85 and used for applying an active film to

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The influence of a magnetic field on...

the surface of the electrodes of fluorescent lamps, is located in a cylindrical discharge tube 50 mm in diameter. It is actually a mixture of methyl alcohol acetone, amyl acetate and low nitrocellulose. The pressure of this atmosphere during the experiments was of the order of a tor and the discharge current of the order of 10 m A. An external axial homogeneous magnetic field, regulable in limits of $0-10^3$ Oe, with a variable polarity, was applied to the discharge space. An analogous problem is solved in paper [3]. Here a study is made of the instability of a discharge in an external magnetic field while the charge, the plasma of which is formed only by electrons and positive ions, is attenuated and rotated by this magnetic field. In our case, however, the conditions are fundamentally different due to the negative ions. The dependence of the frequency of rotation on the magnetic field strength was found. It was proved that the frequency of rotation increased with increasing magnetizing current (Fig. 1). This dependence occurred even when $\omega_0 = 0$ (standing thread). If the thread was in the axis of the tube, it was deflected and rotated when a certain external

The influence of a magnetic field on...

magnetic field was applied. The dependence of the shape of a regular thread, i.e. a helix, and particularly its pitch, on the intensity of the applied magnetic field was also investigated. Measurements showed that the pitch of the helix decreases with increasing magnetic field (Fig. 2). References: [1] Kracik J., Kocian P.: Czech. J. Phys. B 10 (1960), 772; [2] Kocian P., Kracik J.: Slaboproudy obzor 22 (1961), 16; [3] Kadomtsev B. B., Nedospasov A. V.: Plasma Physics I (1960), 230.

[Abstractor's note: complete article]

ASSOCIATION: Electrotechnical Faculty, Physical Institute, Poděbrady

SUBMITTED: January 10, 1962

The influence of a magnetic field on...

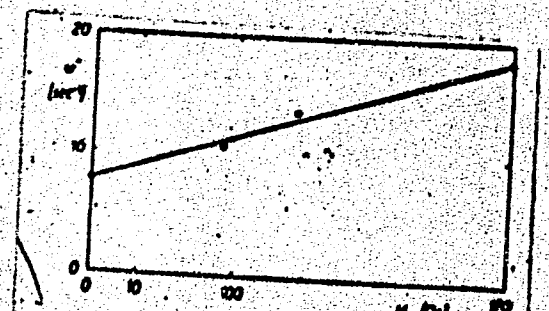

Fig. 1. Dependence of rotation frequency of thread on intensity of external axial homogeneous magnetic field. (Scale on horizontal axis is quadratic).

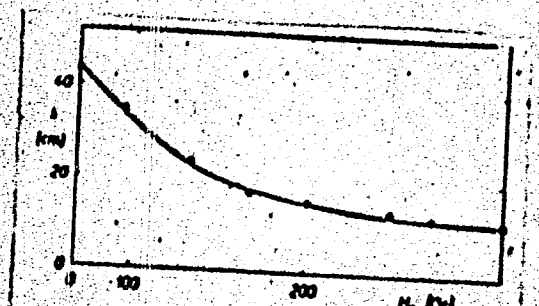

Fig. 2. Dependence of height of helix of thread-pitch on intensity of external axial homogeneous magnetic field. (Scale on horizontal axis is quadratic).

Card 4/4

KRACIK, J.

Acceleration of shock-waves in plasma. Chekhosl fiz zhurnal 13 no.4:246-252 '63.

1. Fyzikalni ustav, Elektrotechnicka fakulta, Podebrady.

KRACIK, J., doc., CSc.

Sixth International Conference on Ionization Phenomena of Gases. Slaboproudy obzor 24 no.11:682 N'63.

SUBERTOVA, Sylva, inz.; KRACIK, Jiri, doc., inz., kandidat technickych ved

Plasma physics from the mercury rectifier to the thermonuclear reactor. El tech obzor 52 no.7:381-382 Jl '63.

KRACIK, J.

Stationary thread glow discharge. Chekhosl fiz zhurnal 13 no.12:895-904 '63.

1. Katedra fyziky elektrotechnicke fakulty, Ceska vysoke uceni technicke, Praha.

KRACIK, Jiri, dpc., inz., kandidat technickych ved

Use of the superconductivity. El tech obzor 52 no.12:665 D '63.

SUBERTOVA, S.; KRACIK, J.

Acoustic waves in the presence of staying layers in glow discharge. Chekhosl fiz zhurnal 14 no.1:72-73 '64.

1. Department of Physics, Electrotechnical Faculty, Prague.

L 10609-65 EWT(1)/EWG(k)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Po-4/
Pi-4/Pz-6/Pab-24 IJP(c)/AFWL/[illegible]/ASD(a)-5 AT
ACCESSION NR: AP4046325 Z/0055/64/014/009/0683/0689

AUTHOR: Kracik, J.

B

TITLE: Resonance conditions for acceleration of clusters of plasma between parallel conductors

SOURCE: Chekhoslovatskiy fizicheskiy zhurnal, v. 14, no. 9, 1964, 683-689

TOPIC TAGS: resonance conditions, acceleration, plasmoid, parallel conductors, maximum velocity

ABSTRACT: Conditions for the maximum attainable velocity of a plasma cluster were investigated by making use of the magneto-hydrodynamic equations and relations characterizing the electric circuits of conductors and sources for accelerating plasma clusters between parallel conductors with an external magnetic field. These equations give the relationship between the parameters of the parallel conductors (distance between conductors, the electric resistance and inductance of conductors per unit length), the external circuit of the source (the capacity C_0, the initial voltage V_0, also the

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ACCESSION NR: AP4046325

inductance and resistance), the magnetic induction of the external magnetic field (the magnetic induction B(I) excited by the current in the conductors and the external constant magnetic induction B_o), and at the same time, the length of the conductors required for attaining maximum velocity. It was found that for large values of B_o the path decreases more rapidly than the final velocity. An expression was derived for determining the value of B_o for which the velocity is maximum. It was concluded that the maximum possible velocity under given equipment can be reached only under the "resonance" conditions as found here. In the over-excited state (B_o increased above resonance conditions), the accelerating path can be shortened with an increase in magnetic induction more rapidly than the final velocity of the cluster decreases. The assumption of invariable density of the cluster is rather uncertain. Analogous considerations are valid for a coaxial jet. Orig. art. has: 24 equations and 4 figures.

ASSOCIATION: Electrotechnical Faculty, Czech Technical University, Prague

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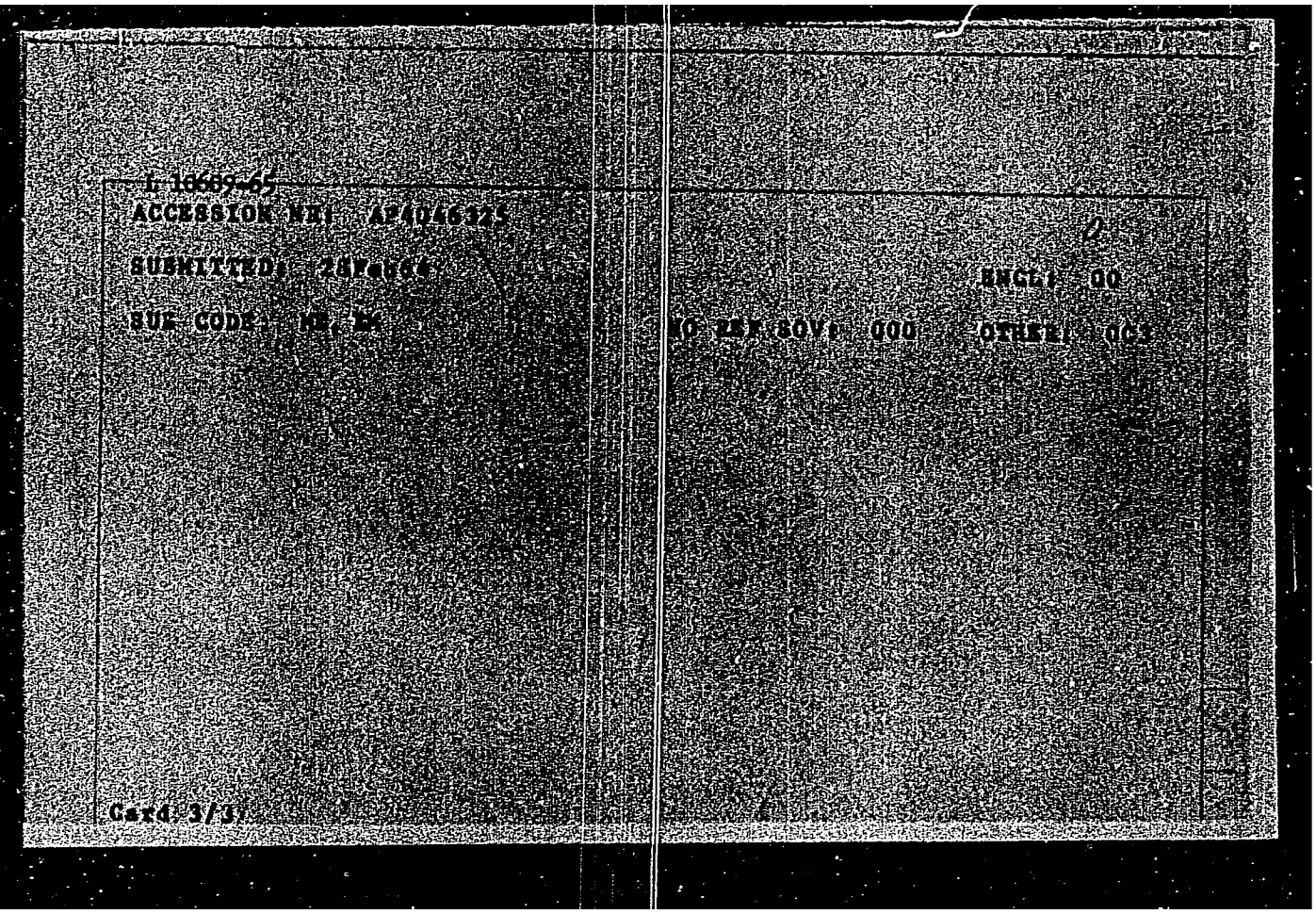

L 33657-66 EJP(c) AT

ACC NR: AP6025042 SOURCE CODE: CZ/0042/65/000/007/0385/0391

AUTHOR: Kracik, Jiri--Kratsik, Yu. (Docent; Doctor of sciences; Prague)

ORG: Department of Physics, Electrical Engineering Faculty, CVUT, Prague (Katedra fyziky elektrotechnicke fakulty)

TITLE: Resonance acceleration of plasma in a coaxial jet [This paper was presented at the Research Conference of the Technical University of Dresden held in Dresden on 22 November 64.]

SOURCE: Elektrotechnicky casopis, no. 7, 1965, 385-391

TOPIC TAGS: plasma physics, plasma accelerator, plasma acceleration, plasma resonance, plasma magnetic field, conductor

ABSTRACT: The article shows that a state of resonance or over-excited acceleration of plasma clusters similar to that of clusters between parallel conductors with an outer magnetic field also is possible with a coaxial plasma accelerator. The structure of the plasma clusters is not known. If it is assumed to be very simple the resulting formulas are nearly identical to those for the acceleration between parallel conductors. This article was submitted by S. Veis. Orig. art. has: 2 figures and 15 formulas. [Based on author's Eng. abstract] [JPRS: 33,733]

SUB CODE: 20 / SUBM DATE: 09Feb65 / ORIG REF: 002 / OTH REF: 001

Card 1/1 mc 0916 0207

L 42239-66 EWP(m)/T-2 IJP(c)

ACC NR: AP6031552 SOURCE CODE: CZ/0017/65/054/009/0430/0435

78
B

AUTHOR: Kracik, Jiri (Doctor of sciences)

ORG: Electrical Engineering Department, Physical Institute, Technical University, Prague

TITLE: Electrodeless magnetohydrodynamic induction chamber with a radial magnetic field

SOURCE: Elektrotechnicky obzor, v. 54, no. 9, 1965, 430-435

TOPIC TAGS: magnetohydrodynamics, magnetic field, alternating current, plasma flow

ABSTRACT: The article deals theoretically with the possibility of generating an alternating current of high voltage in a magnetohydrodynamic induction chamber of a new type. Instead of an axial magnetic field of the exciting coil, a very strong radial magnetic field is employed to generate very efficiently an azimuthal current in the plasma by the magnetohydrodynamic force. Formulas are derived for a continuous plasma flow of constant velocity through through the chamber, defining the voltage across the collecting coil, the electric current in the external circuit and the electrical output. It is proved that the output is maximum not only for a certain resistance of the external circuit of the generator but also for a certain length of the chamber and for a certain frequency of the generated current. An analogous derivation can also be carried out for pulse operation. Orig. art. has: 6 figures and 43 formulas. [Orig. art. in Eng.] [JPRS]

SUB CODE: 20 / SUBM DATE: 04Jun65 / SOV REF: 001 / OTH REF: 001

UDC: 538.521

Card 1/1

0919 0237

TOBIAS, Josef; KRACIK, Miroslav

Labor productivity in the beer transportation in tanks.
Kvasny prum 10 no.4:73-75 Ap '64.

1. Prazske pivovary National Enterprise, Prague, zavod Staropramen.